

of claims) are hereby authorized to be charged to our Deposit Account No. 19-0036.

***Amendments***

***In the Claims:***

Please substitute the following claim 1 for the pending claim 1:

1. (Once Amended) A cathode arc source for generating positive carbon ions from a cathode target, said ions being emitted in a direction substantially normal to a front surface of the target, comprising:

a cathode;

an anode;

a vacuum chamber; and

a magnetic field generating means, wherein said magnetic field generating means is arranged to generate a magnetic field in the vacuum chamber, wherein the magnetic field has a direction substantially normal to the front surface of the target and zero field strength at a position above the target and inside the chamber, the magnetic field being the resultant of fields generated by a first field generating means located above the target and a second field generating means located below the target.

Please substitute the following claim 10 for the pending claim 10:

10. (Twice Amended) A cathode arc source comprising:

a cathode;

an anode;

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a vacuum chamber;

a magnetic field generating means, wherein said magnetic field generating means is arranged to generate a magnetic field in the vacuum chamber;


a cathode station for location of a target in electrical contact with the cathode, said target having a front and a rear surface; and

means for striking an arc at the front surface of the target, wherein the magnetic field is located at the front surface of the target and wherein the magnetic field has a lateral field component effective to maintain the arc on the front surface of the target during operation and a normal field component with a direction substantially normal to the front surface of the target and zero field strength at a position above the target and inside the chamber.

Please substitute the following claim 11 for the pending claim 11:

11. (Once Amended) A method of striking an arc at a graphite cathode target in a vacuum chamber comprising:

- (i) generating (a) below the target, a first magnetic field having a first field direction and (b) above the target, a second magnetic field having a second field direction opposite to that of the first, so as to generate a magnetic field that is resultant from the first and second fields, wherein said magnetic field has a direction substantially normal to a front surface of the target and zero field strength at a position above the target and inside the chamber; and



(ii) striking the arc in the resultant field.

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Please cancel claims ~~17-25~~.